Fact Sheet

Aquifer Protection Permit
Place ID 4296, LTF None
ASARCO Hayden Operations

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an aquifer protection permit for the subject facility that covers the life of the facility, including operational, closure, and post closure periods unless suspended or revoked pursuant to Arizona Administrative Code (A.A.C.) R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., the local subsurface geology), to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer or to prevent pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Permittee's Name:	ASARCO, LLC
Mailing Address:	ASARCO Ray Complex Hayden Operations P.O. Box 8 Hayden, Arizona 85235
Facility Name and Location:	ASARCO Hayden Operations State Hwy. 177 Near Kearney, AZ Pinal County

Regulatory Status

The facilities at the site are operating under a Notice of Disposal (NOD) received by the ADEQ on January 18, 1986. Multi-Sector General Stormwater Permit AZMSG-100 was issued for the site on March 16, 2004. The original Aquifer Protection Permit (APP) application was received on March 25, 1994. Updated information has been subsequently submitted by ASARCO in support of the APP application

The facility soil and groundwater are currently being sampled by the EPA in conjunction with the Remedial Projects Section. The site has previously been sampled and evaluated by the ADEQ Site Assessment Unit.

Facility Description

The facility began operating in 1911, and operations are planned indefinitely into the future.

The Hayden Operations primarily include the following components:

- Assay and metalurgical laboratories (2)
- Solid waste landfills (4)
- Primary copper smelters
- Concentrate and byproduct storage areas
- Slag deposition areas (active and inactive)
- Rail and truck acid loading stations and storage tanks
- Sulfuric acid plant, concentrate filter plant, and lime mixing system
- Petroleum product storage tanks
- Copper concentrator and crusher
- Vehicle wash racks
- Water treatment plan
- Inactive limestone quarry
- AB-BC and D Tailings Impoundments

Hayden receives sulfide ore from the Ray Mine via the Copper Basin Railroad, which delivers seven times a day in railcars having a 100-ton capacity each. Secondary and tertiary crushing, conveying, and rod and ball milling operations are performed. This is followed by froth flotation, filtering and smelting. Tailings generated in the flotation process are deposited at the AB-BC and D tailings impoundments. Low grade slag resulting from the smelting process is deposited in the slag deposition area. Higher grade slag and some byproducts are recycled through the crushing, milling, and flotation systems.

During the copper extraction process, procedures are employed to minimize waste products. Water is recycled within the process. Copper anodes produced by the Hayden Smelter are 98 percent pure. Sulfuric acid, produced as a co-product, is either used at the Ray Mine or sold. The primary source of fresh water for the Hayden Operations is groundwater wells located in the floodplains of the Gila and San Pedro Rivers.

All facilities at the site are considered “existing” facilities as they were built prior to August 13, 1986. Some of these facilities may have ceased operation. The APP will permit 14 “non-stormwater” impoundments, four solid waste landfills and two tailings impoundments. In addition, there are 20 storage areas to be further evaluated under the compliance schedule, and 43 facilities to be closed or further evaluated under the compliance schedule. The compliance schedule lists all facilities and requires that all facilities be described, evaluated and addressed in a permit amendment.

The Hayden operation receives wastewater from the Town of Hayden. The wastewater is injected into the tailing disposal pipeline and conveyed to the three tailing deposition areas. A wastewater disposal plan will be provided within 6 months of permit issuance and is included in the compliance schedule. This plan will include a schedule to discontinue the wastewater discharge to the tailings impoundments within 1 year of permit issuance.

The ASARCO Hayden Operations are located in the Basin and Range Physiographic Province, within the San Pedro and Gila River Basins. The site is bounded by the Dripping Springs Mountains to the east, and the Tortolita Mountains to the west. Precipitation in the nearby mountain ranges is the main source of recharge to the regional aquifers. The regional aquifer system is characterized by the saturated materials in the San Pedro and Gila River Basins, and the underlying bedrock aquifer.

The unconsolidated alluvial/basin fill deposits in the river basins are generally 40 to 100 feet thick. The unconsolidated alluvial fan deposits to the southwest of the site are much thicker. The alluvial aquifer is saturated, and hydraulically connected to the underlying bedrock aquifer in the lower elevations of the river basin valley floor.

The underlying bedrock aquifer underlies the alluvial aquifer at various depths throughout the entire site. All point of compliance wells are screened in the alluvial aquifer.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

BADCT will be demonstrated for the site through appropriate individual BADCT upgrades for applicable facilities at the site. The BADCT will be submitted as a part of the compliance schedule.

Upon completion of the BADCT review of items submitted under the compliance schedule, inspections and operational monitoring requirements will be updated, to ensure that facilities are maintained in accordance with BADCT and standard engineering practices.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

Groundwater at the Hayden site has been documented in the alluvial/basin fill deposits at approximate depths of 15 to 97 feet. Overall groundwater flow direction is toward the center of the river basins, and then downstream. The site is located at the confluence of the Gila and San Pedro Rivers. The direction of groundwater flow varies across the site, depending upon the direction of river flow.

There are no substantial downgradient groundwater points of use in the vicinity of the site.

In order to ensure compliance with Aquifer Water Quality Standards at the POCs, alert levels will be established for constituents that have an AWQS. All POC wells and alert level wells will be sampled quarterly for an abbreviated list of parameters. A longer comprehensive list of parameters is required biennially in the POC wells.

ALs and AQLs have been established for all POC wells. Where additional data are required, the AQLs and ALs are listed as "reserved." ALs and AQLs for constituents with reserved notation will be amended into the permit when sufficient data are available from the ambient monitoring, as required in the Compliance Schedule. The parameters for the POC wells that are reserved are free cyanide, gross alpha particle activity, adjusted gross alpha particle activity, radium 226+ radium 228, volatile organic compounds (EPA 8360), and Semi-volatile organic compounds (EPA 8270).

The parameters to be monitored quarterly in the alert level wells are:

Depth to water, water level elevation, specific conductance, temperature, field pH, total dissolved solids, sulfate, nitrate+nitrite, fluoride, arsenic, copper, and selenium.

The parameters to be monitored quarterly in the POC wells are:

Depth to water, water level elevation, specific conductance, temperature, field pH, total dissolved solids, sulfate, nitrate+nitrite, fluoride, arsenic, copper, and selenium.

The parameters to be monitored biennially in the POC wells are:

Depth to water, water level elevation, specific conductance, temperature, field pH, total dissolved solids, sulfate, total alkalinity, carbonate, bicarbonate, chloride, fluoride, nitrate+nitrite, calcium, magnesium, potassium, sodium, iron, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, thallium, zinc, free cyanide, gross alpha particle activity, adjusted gross alpha particle activity, radium 226+radium 228, uranium, volatile organic compounds (EPA 8260), and semi-volatile organic compounds (EPA 8270).

Point(s) of Compliance (P.O.C)

POINTS OF COMPLIANCE (POC) FOR ASARCO HAYDEN OPERATIONS					
Well Number	**Designation**	**Cadastral Location**	**Latitude North**	**Longitude West**	**ADWR Number**
H-1	Hazardous/Non-Hazardous	D(5-15)8dad	33° 00’ 00”	110° 45’ 57”	55-535503
H-3	Hazardous/Non-Hazardous	D(5-15)8cab	32° 59’ 43”	110° 49’ 08”	55-535507
H-5	Hazardous/Non-Hazardous	D(5-15)16dac	32° 59’ 56”	110° 48’ 48”	55-535508
H-6	Hazardous/Non-Hazardous	D(5-15)13acc	32° 59’ 52”	110° 45’ 58”	55-535504
H-8	Hazardous/Non-Hazardous	D(5-15)15aaa	33° 00’ 10”	110° 47’ 31”	55-539676

IV. STORM WATER AND SURFACE WATER CONSIDERATIONS

The site is located at the confluence of the San Pedro and Gila Rivers. The permitted facilities lie principally along the Gila River. Stormwater from upgradient areas will be required to be diverted around permitted facilities, as appropriate. The permitted facilities will be required to be sized to incorporate the 100-year/24-hour storm event, while maintaining appropriate freeboard. Multi-Sector General Stormwater Permit AZMSG-100 was issued for the site on March 16, 2004**.**

V. COMPLIANCE SCHEDULE

An updated contingency and emergency response plan, facility description of all facilities, updated closure and post-closure plan and costs and the demonstration of financial capability is required within 3 months of permit issuance.

An operation plan for the Water Treatment Plant for Contact Blowdown is required within 3 months of permit issuance.

A wastewater disposal plan is required within 6 months of permit issuance that includes discontinuing discharge of wastewater to the tailings impoundment within 1 year of permit issuance.

The compliance schedule requires the submission of the BADCT demonstration for all regulated, or potentially regulated, facilities within 9 months of permit issuance.

The completion of ambient sampling for radionuclides, VOCs and SVOCs in the POC wells, and the calculation of appropriate ALs and AQLs are due within 12 months of permit issuance.

VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

The ASARCO Hayden Operations has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B).

ADEQ requires that appropriate documents be sealed by an Arizona registered geologist or professional engineer. This requirement is a part of an on-going demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The permittee shall be required to demonstrate financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall be required to maintain financial capability throughout the life of the facility. The estimated closure and post-closure costs, provided by ADEQ, are $ 10,092,157 and $1,842,000, respectively. The financial assurance mechanism shall be demonstrated through A.A.C. R18-9-A203(C). Updated closure costs, post-closure costs and the associated financial assurance mechanism shall be provided within 3 months of permit issuance and is included in the Compliance Schedule, Section 3.0 of the permit.

Zoning Requirements

Mines are exempt from zoning requirements per A.R.S. § 11-830.

VII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-108(A))

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-109(A))

The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

VIII. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality
Water Quality Division – APP & Drywell Unit
Attn: Steve Vevang
1110 W. Washington St., Mail Code: 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771- 4621